

## WHAT IS CLAIMED IS:

1. A zoom lens system comprising, in order from an object;  
a first lens group having negative refractive power;

5 an aperture stop;

a second lens group having positive refractive power; and

a third lens group having positive refractive power;

wherein when the state of lens group positions varies from a  
wide-angle end state to a telephoto end state;

10 the first lens group and the second lens group are moved and  
the third lens group is fixed such that

a distance between the first lens group and the second lens  
group varies; and

15 a distance between the second lens group and the third lens  
group increases; and

wherein the second lens group is composed of four lenses or less;

the second lens group includes a diffractive optical surface  
formed on a lens surface except the most object side lens surface; and

the following conditional expression is satisfied:

20  $0.2 < C/fw < 2.0$

where C denotes the effective diameter of the diffractive optical  
surface, and fw denotes the focal length of the zoom lens system in the  
wide-angle end state.

2. The zoom lens system according to claim 1, wherein the following conditional expression is satisfied:

$$0 \leq L/L2 < 1.0$$

5 where L denotes a distance along the optical axis between the most image side lens surface of the second lens group and the diffractive optical surface, and L2 denotes the total lens length of the second lens group (not including the aperture stop).

10 3. The zoom lens system according to claim 2, wherein the diffractive optical surface is formed on a lens surface which faces the air, and the following conditional expression is satisfied:

$$0 \leq |fw/ra| < 0.4$$

15 where ra denotes a radius of curvature of the lens surface on which the diffractive optical surface is formed.

4. The zoom lens system according to claim 3, wherein the following conditional expression is satisfied:

$$0.2 < f3/fw < 15.0$$

20 where f3 denotes the focal length of the third lens group.

5. The zoom lens system according to claim 2, wherein the following conditional expression is satisfied:

$$0.2 < f3/fw < 15.0$$

where  $f_3$  denotes the focal length of the third lens group.

6. The zoom lens system according to claim 1, wherein the diffractive optical surface is formed on a lens surface which faces the air,  
5 and the following conditional expression is satisfied:

$$0 \leq |f_w/r_a| < 0.4$$

where  $r_a$  denotes a radius of curvature of the lens surface on which the diffractive optical surface is formed.

- 10 7. The zoom lens system according to claim 6, wherein the following conditional expression is satisfied:

$$0.2 < f_3/f_w < 15.0$$

where  $f_3$  denotes the focal length of the third lens group.

- 15 8. The zoom lens system according to claim 1, wherein the following conditional expression is satisfied:

$$0.2 < f_3/f_w < 15.0$$

where  $f_3$  denotes the focal length of the third lens group.